

with these elevated radium levels. After considerably improving the sensitivity of the radon-in-breath method, they obtained estimates of the amount of radium in a number of subjects who had been drinking water from a known supply for a long period of time (Stehney and Lucas 1956). Included were 30 inmates of a nearby prison who had been incarcerated for periods ranging from a few months to 25 years. Marshall et al. (in ICRP 1973) later deduced an estimate of 0.21 for the fractional absorption of radium from the gut to blood on the basis of the data from these prisoners, very close to the value of 0.20 obtained by Maletskos et al. (1969).

A key event in the radium program was the arrival at Argonne of W.B. Looney, who came in July of 1950 as a postdoctoral AEC fellow in medical science. Looney was assigned, under the direction of Hasterlik, to a project that originated from a suggestion by Marinelli, to study the group of 32 mental patients given radium chloride intravenously at the Elgin State Hospital in 1931.

In his two years at Argonne, Looney was apparently the only staff member who devoted all of his time to the study of the radium cases. He spent several weeks at the Elgin State Hospital, locating the subjects given radium in the 1930s by examining hundreds of patient files. He also contacted physicians who had treated patients with radium and obtained from them the names of some of their patients. Further, he was responsible for the clinical studies on the patients he was able to bring to Argonne.

The clinical studies for each patient at that time included a patient history, a physical examination, complete skeletal X-rays, complete dental X-rays with a dental consultation, a complete blood count, differential white blood cell count, sedimentation rate, a urinalysis, serum calcium, serum phosphorus, serum alkaline phosphatase, and a Kahn test.

An Argonne report dated July 1951 and titled *A Progress Report of Clinical Studies on Twenty-Four Patients* had as its authorship "the Radium Toxicity Group, report compiled and written by William B. Looney, Division of Biological and Medical Research" (Looney 1951). Thus, one year after his arrival, Looney was responsible for the first Argonne document on human radium studies. Many others were to follow.

In September of 1951, Looney, Norris, and Stehney met with Marinelli to discuss the publication of the data that had been gathered in the prior year. They agreed to publish in one journal a series of papers covering all facets of the work. They envisaged the following six papers: (1) an introduction, to be authored by the heads of the divisions; (2) measurements of radon in exhaled breath, by Stehney and colleagues; (3) measurements of the nonemanating